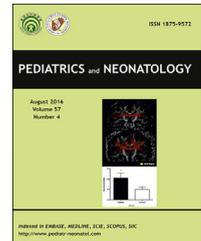


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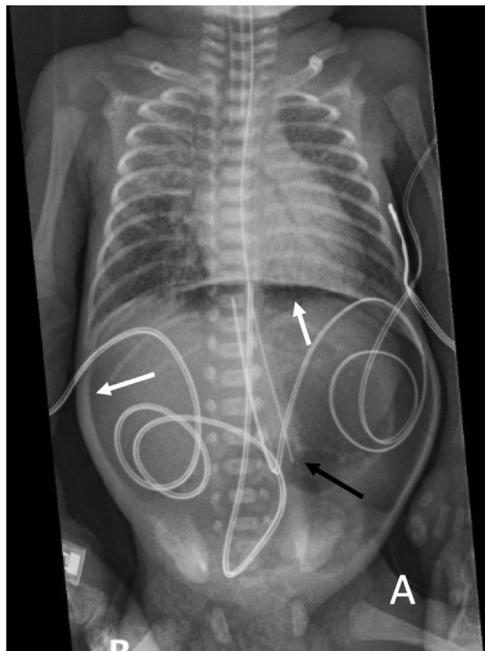
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Letter to the Editor

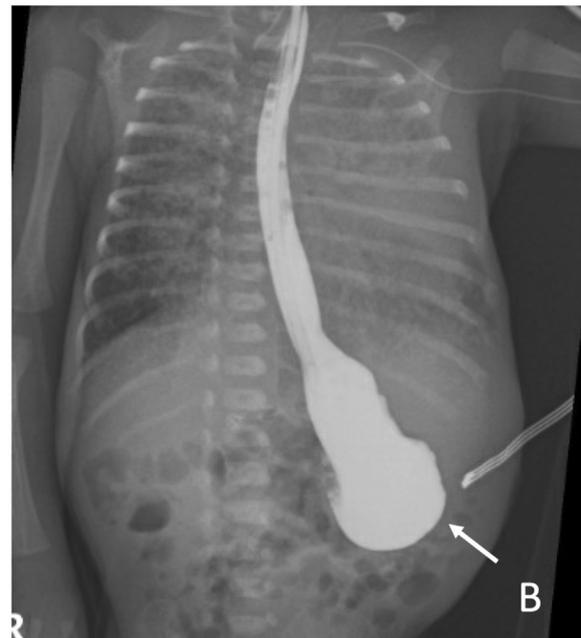
Survival of the smallest premature infant with gastric perforation

We report the survival of the smallest premature infant with gastric perforation (GP). The infant was born at 23^{1/7} weeks of gestation and had a birth weight of 540 g (46%; z = -0.08). The infant was intubated and placed on the oscillatory ventilator. A 5.0-Fr nasogastric tube (NGT) was inserted at a depth of 15 cm (NeoMed, Woodstock, GA). At Day 3 of life, she was started on expressed breast milk feedings (10 mL/kg/day) via NGT. No medications were

given through the NGT. At Day 4, early morning, she developed abdominal distension. An abdominal X-ray showed free air in the peritoneal cavity (Fig. 1, Panel A). Urgent abdominal exploration was performed. Surgical findings were an anterior rent in the stomach compatible with a necrotic area that had perforated. The rest of the bowel looked healthy, with no signs of necrotizing enterocolitis. The NGT was left in situ and was not encountered



Panel A



Panel B

Figure 1 Abdominal X-ray, anterior–posterior view with the infant lying supine on the incubator bed. Panel A: The white arrows point to the free air in the peritoneal cavity. The black arrow shows the nasogastric tube in situ. Panel B: Image 3 weeks after surgery, showing completely healed perforation with no extravasation. The white arrow points to the smooth contour of the stomach.

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during this procedure (i.e., it was not involved in the perforation at the time of surgery). The infant was kept nil per os and was managed with total parental nutrition via a central venous catheter. She was kept on low ventilator settings for two weeks and was then extubated for noninvasive ventilation. Three weeks later, a contrast study showed complete resolution of the perforation (Fig. 1, Panel B). The infant was later started on NGT feeding, which she tolerated well. She was discharged home at 5 months of age (post-menstrual age of 43^{4/7} weeks) on gastrostomy feeds and oxygen. At the follow up visits, she was thriving well.

GP very rarely occurs in newborn infants. However, when it occurs in extremely premature infants, it is associated with 100% mortality. Babayigit et al.¹ described a total of eight preterm infants who developed GP, and the smallest were two infants born at 24 weeks of gestation. The overall mortality was 62.5% (5/8), and both the 24-week preterm infants died of late sepsis. In their case series, Yang et al.² described 68 infants with GP, of which 42% were premature. They further divided them into four groups based on years: Group 1, 1980–1989; Group 2, 1990–1999; Group 3, 2000–2009; and Group 4, 2010–2016. The mortality rates for those groups were (5/5) 100%, (12/24) 50%, (6/19) 31.6%, and (3/19) 15%, respectively. In another study, Thanhaeuser et al.³ described seven neonates with median gestational age of 23 + 3 weeks, and spontaneous recovery without major complications was noted in 85.7% of the neonates.

In conclusion, GP in newborn infants is rare but is associated with a very high mortality. A high index of suspicion and early surgical intervention with balanced ventilatory and nutritional management are keys to improved survival and decreased morbidity.

Author contribution

Dr. Manzar conceptualized the study and wrote the draft.

Declaration of competing interest

None.

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